

Molson Breweries

Etobicoke, Ontario

"Molson Breweries, the leader in the Canadian brewing industry, is committed to protection and enhancement of the environment and considers it a joint management-employee responsibility. The thrust of our efforts is aimed at improving effluent quality, reducing energy consumption and waste minimisation. The Green Industry Analysis helped us to uncover additional opportunities for substantial improvement in all three areas."

Mr. Tom Lom
Director, Environmental Affairs
Molson Breweries

THE COMPANY

Molson Breweries, Canada's largest brewery, produces more than 50 brands of beer and beer products for sale in Canada and internationally. In 1989, Molson and Carling Breweries merged and continued operation of its Etobicoke plant — a large operation which runs around the clock.

CHALLENGE

In 1994, Molson was faced with the same challenge as other companies, that is, becoming more cost competitive. The company wanted to reduce the amount of water, electricity and natural gas used in the Etobicoke plant as well as the amount of effluent and solid waste generated.

Molson selected Maunday Britnell Inc. of Markham, Ont., an engineering consultant with considerable experience in the brewing industry, to perform a Green Industrial Analysis. The analysis was intended to help Molson set priorities and make plans for implementing capital and operational projects related to "green" opportunities in the Etobicoke plant.

Maunday Britnell's task was to identify, analyze and recommend appropriate opportunities for reducing the amount of energy and water used and effluent and solid waste generated. The green analysis was to find

ways for Molson to make the plant's processes more efficient in order to conserve resources and to protect the environment.

OPPORTUNITIES

The analysis focused on the following processes which management considered to be a high priority:

- * reducing water and energy use;
- * neutralizing liquid effluents;
- * reducing of solid wastes;
- * reducing biological oxygen demand (BOD) and suspended solids in effluent;
- * reduce the quantity of chemicals;
- * recover filter media.

POTENTIAL SAVINGS

The estimated potential annual savings if Molson implements all the recommendations:

Natural gas	\$320,876
Water	156,475
Liquid effluent	25,800
Chemical treatment of effluent	93,750
Total	\$596,901

The savings would require an initial capital investment of \$839,300.

RECOMMENDATIONS

The consultant made the following major recommendations in the Green Analysis Report:

(1) Use excess carbon dioxide to neutralize effluent stream

Molson could capture the low-grade carbon dioxide, a by-product produced during the brewing process, and use the gas to neutralize the effluent stream. The capital cost would be \$385,000. But the estimated annual savings would be \$93,750 with a payback period of 4.1 years.



(2) Reduce the water used in clean-up operations

Molson could reduce the amount of water it uses by tightening up the operations and maintenance practices that control the washing operations and by shutting off the hoses when they are not in use. There is no capital cost, but the annual savings total \$256,475.

(3) Install heat exchangers on the soaker and pasteurizer

Molson could preheat the cold water coming into the soaker and pasteurizers with the hot discharges from the same machines and reduce the amount of steam heating used. The capital cost would be \$215,500. But the annual savings would be about \$135,731 with a payback period of 1.6 years.

(4) Put second heat exchanger on pump on stackmaster system

Molson could recover more heat in the form of hot water by installing a new plate heat exchanger in the Stackmaster system. This heat could be used for clean-in-place operations

and for preheating the boiler. The capital cost is estimated at \$32,500. But the estimated annual savings would be \$96,846 in the use of steam with a payback period of about four or five months.

Through the combined efforts of hourly and staff employees in existing energy and utility management teams in the brewery, Molson has already realized significant gains in these areas. By working with the Ministry of Environment and Energy, even faster progress is expected. In fact, Molson has already started implementing a number of the study recommendations.

The report identified the application of carbon dioxide to control the pH level in the effluent stream as a technology which could be developed as a business.

These improvements could be duplicated in other Ontario breweries, particularly plants wishing to modernize or modify their operations.



Improving environmental performance is a team effort at Molson Breweries.

PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION

Industrial companies located in Ontario may participate in ministry/ industrial programs that will help them to:

- * use energy and water more efficiently;
- * reduce, reuse and recycle solid waste;
- * reduce or eliminate liquid effluent and gaseous emissions.

Equipment and services supply companies can benefit from the information provided on technologies identified for business development.

MINISTRY OF ENVIRONMENT AND ENERGY SERVICES

For information on Ministry of Environment and Energy assistance to industry, please contact the Industry Conservation Branch at (416)327-1492, Fax (416)327-1261.

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This project profile was prepared and published as a public service by the Ontario Ministry of Environment and Energy. Its purpose is to transfer information to Ontario companies about findings and recommendations of a resource conservation and environmental analysis conducted by a consulting engineering firm at an industrial plant in Ontario.

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